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Helium does not manifest itself in stars of Classes IIIa and IIIb, as indeed could hardly be expected; for, with the increased absorption by the compounds which seem to form at the presumably low temperature of these stars, hydrogen and the lighter gases appear to retire. Helium lines might be looked for among the bright lines that flash out as the long-period variables of Class IIIa approach a maximum, but they do not seem to be present. Comets, meteors, and aurora alike give no spectroscopic testimony of helium, although its presence has been chemically detected by RAMSAY in a meteorite. With this ends the present record of helium as a constituent of celestial objects. First discovered in the Sun, it has eluded detection in our own planet for over a quarter of a century, but the logic of common origin and common chemical constitution of Sun and Earth has now been vindicated.

It is not too much to expect that the revived study of gases occluded in minerals will soon lead to the discovery of other substances or elements whose existence is thus far known to us only from the spectroscopic evidence of celestial objects. In particular, we ought next to hope for the enrollment among the family of terrestrial elements of the substances producing the corona line and the characteristic nebular lines.

DARTMOUTH COLLEGE, HANOVER, N. H., Nov. 18, 1895.

THE MOON,* BY THOMAS GWYN ELGER.

REVIEWED BY M. C. M. GAUDIBERT.

Since M. WEBB, many years ago, published in his well-known and highly appreciated book, *Celestial Objects for Common Telescopes*, his short but very suggestive treatise on the Moon, the study of the visible surface of our satellite has received such an impetus among an ever-increasing number of observers, that no slackness is perceptible even to the present day. This little work, also, came out about the time when MM. G. WITH and BROWNING placed in the hands of the public their deservedly celebrated telescopes with silvered mirrors, at such comparatively

* The Moon, a full description and map of its principal physical features, by THOMAS GWYN ELGER, F. R. A. S. London, GEORGE PHILIP & SON, 1895. 8vo, pp. 173.

low price that almost every one who had a taste for astronomy could gratify their desire and survey the sky, gazing on the myriads of worlds as far as their instruments could reach. The Moon, of course, was the globe which most arrested the attention of amateurs; and it was soon found that it was not an exhausted world, but that there was much more to discover on its surface than professional astronomers generally had suspected.

At that time, WEBB's little book and the map of the Moon it contains were almost the only guide and unique source of information within the reach of an eager and continually increasing number of observers. The clear and precise descriptions M. WEBB gave of a large number of lunar formations, instead of satisfying the requirements of the possessors of the new silvered telescopes, increased, on the contrary, their eagerness to know more. It was then that the *English Mechanic* became the recipient of a multitude of observations and discoveries made by observers, and through its means selenography made such progress that it can be well compared with the progress it has made since *Societies* have officially taken charge of it. During this period the name of M. BIRT impresses itself on the memory, and one gratefully remembers his services to selenography, and his devotedness in helping observers and directing their efforts.

When M. NEISON's book on the Moon was published, it soon found its way into the libraries of public and private observatories, and also in the hands of many observers. It is not my purpose here to speak of the high value of this book, of which I have not the least doubt. I wish only to point out what I consider to be two defects which, I feel convinced, have been felt by many. The first is that, for amateurs generally, the book is too bulky, and, therefore, not easy to handle at the telescope; the maps themselves, as they are disposed, adding not a little to the difficulty. The second is its high price, which places it beyond the reach of many who, having spent as much as they conveniently could for a telescope, are obliged to deprive themselves of the help they might have received from this book had it been less expensive.

The Moon, by M. ELGER, happily fills up that gap. This cheap and handy volume, I am convinced, will soon be in the hands of every observer who, up to the present time, has had no guide to help and lead him in the fascinating studies of our satellite; and those, even, who are already provided with other means, will not read this work without profit.

It is not to be expected that the reader will find in this book as many details as in the more expensive work of NEISON. But whatever is essential in the last will be found in the first, and besides, many considerations which are the results of more recent studies, and even several discoveries hitherto unknown. M. ELGER is not a tyro. He has had more than thirty years' experience in selenographical observations with two good instruments. He cannot but be a safe guide, and, so far as he goes, the student may have full confidence in his teaching. He might, perhaps, have gone somewhat further, now that lunar photography has opened up before us such bright prospects, anticipating in this way what circumstances, not far distant, I feel certain, will oblige every writer on the Moon to take into account, and to give to it a prominent place.

The Moon, by M. ELGER, is composed of an introduction, a catalogue of lunar formations, and an index, with a lunar map. The introduction is not only interesting, but also very important. It contains a short notice of selenographers since the "earliest times" down to the present day, showing the part played by the principal philosophers and selenographers in the gradual development of that branch of astronomy. Then M. ELGER defines the various formations the observer will meet with. These definitions are of the first importance, and the beginners, especially, will do well to get thoroughly acquainted with them, as they will be of the greatest use when they observe through the telescope, and also when they are called to describe what they see. They will find that these definitions are not dry, logical abstractions, but, on the contrary, descriptions of objects to which they refer, with a large amount of details and examples to which those definitions apply. When the student has well mastered the contents of this introduction, he will be well prepared to make the best use of the second part of this valuable book, which consists of a catalogue of 501 objects. Each of these objects is discussed in clear and precise terms, but, of course, with more or less details, according to their importance and the degree of knowledge we have attained up to the present time. It will be found that not only the principal objects are thus described, but also secondary formations as well as peaks on the walls and principal mountains in the neighborhood.

The map is part and parcel of the book, and, as it is divided into four quadrants, each quadrant is placed at that page of the book where the description of the objects it contains

begins. I believe no better mode could be found to render its use handy and pleasant. It is also clearly printed, and no great difficulty will be found, even with a dim light, in distinguishing every object it contains.

In the appendix will be found the description of the map, a list of the Maria, or gray plains, termed seas, a list of some of the most prominent mountain ranges, promontories, isolated mountains, and remarkable hills; also a list of the principal ray-systems, light-surrounded craters, and light spots; the position of the terminator, contained in two most useful tables extending to the end of the present century; the lunar elements, and, lastly, an alphabetical list of formations.

It will thus be seen that a most useful and handy book on selenography is now within the reach of every student of the satellite of the Earth, and, for my part, I wish it good speed.

C. M. GAUDIBERT.

VAISON, VAUCLUSE, FRANCE.

(NINETEENTH) AWARD OF THE DONAHOE
COMET-MEDAL.

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to Dr. LEWIS SWIFT, Lowe Observatory, California, for his discovery of an unexpected comet on August 20, 1895.

The Committee on the Comet-Medal,

EDWARD S. HOLDEN,
J. M. SCHAEBERLE,
W. J. HUSSEY.

October 20, 1895.